

REMARKS

Claims 160-163 and 165-200 are pending. Claims 167-200 have been withdrawn as directed to a non-elected species. Claims 160-163 and 165-166 stand rejected.

Item 1

Applicant recognizes a new Examiner for the application.

Item 3

Applicant appreciates that previously presented rejections have been withdrawn.

Item 4

The Office Action interprets the term “insertion compound” to mean “any compound,” and states that the term is not defined. Office Action at 2.

The PTO is to employ the “broadest reasonable construction” standard in understanding the claims. MPEP 2111, citing *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005). .

Applicant respectfully urges that the proper meaning of “insertion compound” is more limited than “any compound.” In particular, the Office Action’s construction is not reasonable because it is overbroad and ignores the actual language of the claim.

The PTO is to accord the words of the claim their plain meaning unless the plain meaning is inconsistent with the specification. MPEP 2111.01, citing *In re Zletz*, 893 F.2d 319 (Fed. Cir. 1989). The ordinary and customary meaning of a claim term is the meaning that the term would have to a person of ordinary skill in the art in question at the time of the invention. MPEP 2111.01, citing *Phillips*.

The plain meaning of the term “insertion compound” as understood by one of ordinary skill in the art of nucleic acid chemistry regards a compound that can insert into a nucleic acid molecule. This understanding is amply supported by the specification, e.g. the “insertion compound may be attached to the DNA molecule in the at least one denatured portion of the

DNA molecule.” *At* p. 7, ll. 17-20. Also, the specification recites that “at least one chemical moiety that prohibits recrystallization of the at least one denatured portion of the at least one DNA molecule *is attached to* at least one nucleotide …” *At* p. 3, ll. 1-6. (Emphasis added.) The specification repeatedly uses “insertion compound” as a subset of chemical moieties that can attach to nucleic acid. See, e.g., p. 7, ll. 17-20 and p. 10, ll. 4-6. Thus, an insertion compound by its plain meaning is a more specific class of compounds than the Office Action’s overbroad definition.

Every word of the claim must be given effect. *Glaxo, Inc. v. Novopharm, Ltd.*, 110 F.3d 1562 (Fed. Cir. 1997) (“It is elementary patent law that all limitations are material.”) It is an inappropriate construction to read an express limitation out of a claim. *Texas Instruments, Inc. v. U.S. Int'l Trade Comm'n*, 988 F.2d 1165 (Fed. Cir. 1993) (“[W]e will not [read an express limitation out of the claims] because courts can neither broaden nor narrow claims.”) *Also, Ethicon Endo-Surgery, Inc. v. United States Surgical Corp.*, 93 F. 3d 1572 (Fed. Cir. 1996). (The patentee’s infringement argument “invites us to read [a] limitation out of the claim. This we cannot do.”)

The Office Action has read the word “insertion” out of the claim. To do so is improper.

For at least the above reasons, Applicant respectfully urges the USPTO to reconstrue the claim to give all due weight to the term “insertion” and therefore rescind the final rejection.

Item 5

The Office Action asserts that the term “attaching” is not defined in the specification, and therefore any form of interaction between a nucleotide and the insertion compound, whether covalent or not, is considered as “attachment.” *At* 2.

Applicant urges that this construction is not consistent with all the limitations of the claim. Specifically, claim 160 requires “the insertion compound *reacts with* an amine group.” (Emphasis added.)

A chemical reaction in this context is understood to result in the formation of a covalent bond.

Indeed the specification has extensive disclosure of the formation of bonds. For example, “The chemical moieties may include an attachment portion that assists in bonding the insertion compound to the DNA molecule.” *At* p. 10, ll. 6-9.

Items 6-7. Rejections under 35 U.S.C. §102(e)

Claims 160-163 and 165 stand rejected as anticipated by Heller et al. (U.S. Patent No. 6,017,696; herein “Heller”). Office Action at page 3.

First, this is not a new rejection, as the same rejection over Heller et al. was specifically overcome in the Office Action of July 13, 2007.

Notwithstanding the expansive and incorrect construction of the claim terms asserted by the Patent Office in items 4 and 5, mentioned above, the Office Action provides no suggestion that the previous Examiner used too narrow a claim construction. Moreover, the Office Action provides no suggestion that the previous Examiner used a different claim construction. Furthermore, the expansive construction of claim terms in items 4 and 5 is not consistent with the specification and with usage of terms in the art, as mentioned above.

The USPTO has an obligation to move prosecution of an application forward, rather than repeat rejections that have already been successfully addressed.

For at least these reasons, Applicant requests immediate withdrawal of all rejections and allowance of the pending claims.

Second, the Office Action states that Heller teaches a method for binding a reverse primer to prevent renaturing of the target to the ML-1 capture probe. Since the bases of nucleic acids have amino groups, the Office Action continues, the primer “interacts with” the amino groups by hydrogen bonding. *At* 4.

The claim requires that the insertion compound “reacts with an amine group” but the rejection is made on the basis of “interact[ing] with” amine groups. These are not interchangeable terms. Interacting denotes a reversible association, as by formation of hydrogen bonds. By contrast, “reacts with” denotes formation of a covalent bond(s). Therefore, the term “attachment” should be construed as a covalent bond formation.

Heller does not teach forming covalent bonds between insertion compound and nucleic acid. Thus, Heller does not teach all the elements of the claimed invention. On this additional basis, Applicants respectfully request withdrawal of the rejection.

Third, one of skill in art would understand that the claim requires that the insertion compound reacts with an amine group.

A *reaction* is “[i]n chemistry, the intermolecular action of two or more substances upon each other, whereby these substances are caused to disappear, new ones being formed in their place.” Stedman’s Medical Dictionary, p. 1501 (26th Ed., 1995). By contrast, an *interaction* is “[t]he reciprocal action between two entities in a common environment as in chemical [interaction].” *Id.* at 880. Copies of the cited pages are provided in the accompanying Information Disclosure Statement.

Thus the definitions of these terms as understood in the art distinguishes the claim from Heller, because Heller does not teach the elements of the claim, properly construed.

Fourth, and importantly, Heller et al. teaches *not to use* covalent attachment: “The following reiterates important advantages the devices of this invention provide for nucleic acid hybridization reactions and analysis: ... (15) The development of a detection method which eliminates the need for using covalently labeled reporter probes or target DNA to detect hybridization.” Col. 24, ll. 19-67. (Emphasis added.) By its own admission, the reference does not contemplate using covalent attachment. Thus, because Heller *eliminates* the need for covalent attachment of an insertion compound, Heller cannot be reasonably construed to teach covalent labeling. For this additional reason, Heller does not disclose all the elements of the claim.

For at least the above reasons, Applicant respectfully requests withdrawal of all rejections of claim 1 and prompt allowance of the claim.

The claims that depend from claim 160 incorporate all the limitations of claim 160. Therefore, for at least the above reasons, claim 160 and claims that depend from claim 160 are not anticipated by Heller et al.

Items 8-9. Rejection under 35 U.S.C. §103 over Heller et al.

Claim 166 is rejected as obvious over Heller et al., standing alone. Office Action page 5. The Office Action states that Heller “does not specifically teach the use of 100 nanosecond pulses.” Office Action page 7. However, Heller teaches “the amount of voltage and the time period of application will be dependent on the length and base composition of the hybrid DNA complex (see column 46, line 66 to column 47, line 1).” *Id.* According to the Office Action one of ordinary skill in the art would routinely optimize the time for application of electrical current.

Claim 166 depends from claim 160 and incorporates all the recitations thereof. For the reasons presented above, Heller et al. does not disclose or render obvious all the elements of claim 160. For at least this reason, the rejection of claim 166 as obvious over Heller should be withdrawn.

Withdrawal of all rejections is respectfully requested.

In view of the above amendment, applicant believes the pending application is in condition for allowance.

An Information Disclosure Statement, and fee therefore, accompany this Response.

A One-Month Extension of Time and fee accompany this amendment.

If any additional fees are due, please charge our Deposit Account No. 09-0456, under Order No. YO998229US4 from which the undersigned is authorized to draw.

Dated: March 28, 2008

Respectfully submitted,

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